



# U.C.-Blackwelder Model-134 Tomato Harvester

Fully hydraulic • High-speed separation for vine-storage fruit • Electronic sorting • New dirt-control system



## **Our most reliable, simplest-to-maintain, high-performance tomato harvester yet**

Blackwelders produced the first commercial mechanical tomato harvester in 1960. Now, 1150 production models later, we are introducing our most sophisticated, simplest-to-maintain, high-performance tomato harvester yet. The U.C.-Blackwelder Model-134 tomato harvester with advanced closed-loop hydraulic circuitry. It features a new, exclusive dual-crank shaker system designed to separate the new vine-storage tomatoes from the vines. It offers the most efficient high-volume electronic sorting system available. And it has a dirt-removal system second to none. The U.C.-Blackwelder is mechanically reliable, easy and economical to operate, assures maximum fruit recovery with minimum manpower, and is designed to deliver clean fruit to the cannery.

## **Field-proven sickle cutting system assures maximum recovery**

Fast, clean separation of vines from the root systems under all field conditions is essential for maximum recovery of clean fruit with minimum fruit shatter. The Blackwelders' heavy-duty sickle system cuts the vines below the surface of the ground across the full width of the bed. Cutting speeds can be controlled by the operator to match down-the-row speeds. Vines and fruit pass into the machine as they grow on the bed. Sickle sections and cutter bar are designed to provide long life, minimum maintenance.

## **Low header profile for greater recovery at faster down-the-row speeds**

The extremely low profile of the pick-up header reduces the angle of approach at the point of ground level. This, combined with the ability of the operator to match the header speed with harvester ground speed, permits an even flow of vines and fruit into the separation system. One-inch spacings between potato chain links allow loose dirt and small clods to fall back onto the bed.

New split-drive sprockets, foot idlers, side guide sprockets and direct-drive hydraulic motors simplify maintenance and extend chain life. Pick-up lift cylinders are located above header to reduce trash build-up.

The high-lift pick-up header can be lifted to simplify turning in short headlands. When turns



are completed, the operator pushes a single lever to a pre-set control position, and the pick-up header/sickle-bar unit synchronizes with the gauge wheels.

## **Potato chain upper header for cleaner fruit**

The upper header is separated from the pick-up header by a spinner which is an integral part of the U.C.-Blackwelder dirt-control system. (See Page 4.) The one-inch spacing between potato-chain links in this header allows dirt to sift through and fall to the ground.

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# **U.C.-Blackwelder Model-134**

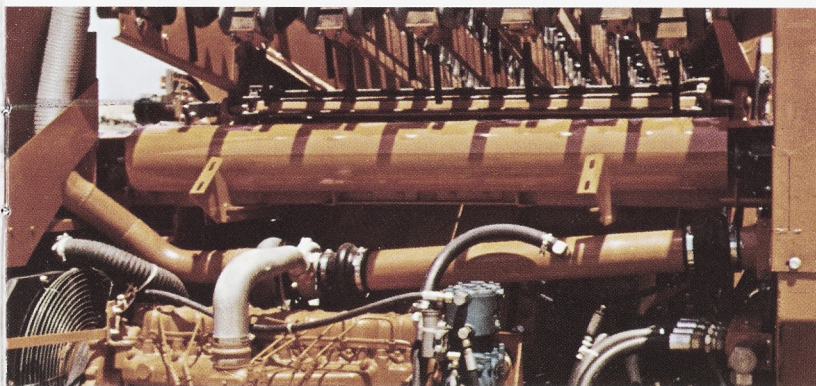


# New dual-crank, variable-speed shaker separates vine-storage fruit efficiently.

The exclusive new variable-speed dual-crank shaker is the first in the industry with the high-speed shake required to separate vine-storage varieties. The front and rear cranks in this big 5' x 9' twelve-walker system are interchangeable. Operable between 120 and 240 RPM, this new shaker system can be used to separate any tomato variety now being grown. At 200 RPM, the speed currently recommended for vine-storage tomatoes, the U.C.-Blackwelder dual-crank shaker develops 50% more impact on the vine than attainable with our previous shaker system. Efficient separation of tomatoes at speeds up to 5 mph has been attained with this exclusive high-speed shaker system.

All components, including bearings and hydraulic motors, are easily accessible for fast, simple, in-the-field maintenance. Because the separation of vine-storage tomatoes generates more trash, a new, heavy-duty trash-removal system has been added to the U.C.-Blackwelder.

Roller on the new trash-removal system (**below**) effectively discharges the large amounts of trash generated in the separation of vine-storage tomatoes in the U.C.-Blackwelder dual-crank shaker system (**right**).





# Ten major dirt elimination areas

The delivery of clean tomatoes is more important than ever before in the history of mechanical harvesting. The U.C.-Blackwelder is unmatched for its combination of mechanical and operator-controlled dirt-elimination features. No other machine offers the number of adjustments an operator can make—most without leaving the control console—to harvest clean tomatoes.

The spacing between the sickle bar and the pick-up header can be changed to match soil conditions.

The main transfer to the clod/loose-fruit belt is a spinner located between the two headers. The spacing between the spinner and the headers also is adjustable to allow more or less loose matter to enter the clod system. Clods and loose fruit then are conveyed to a sorting belt where the loose fruit is recovered and the clods and dirt are returned to the field.

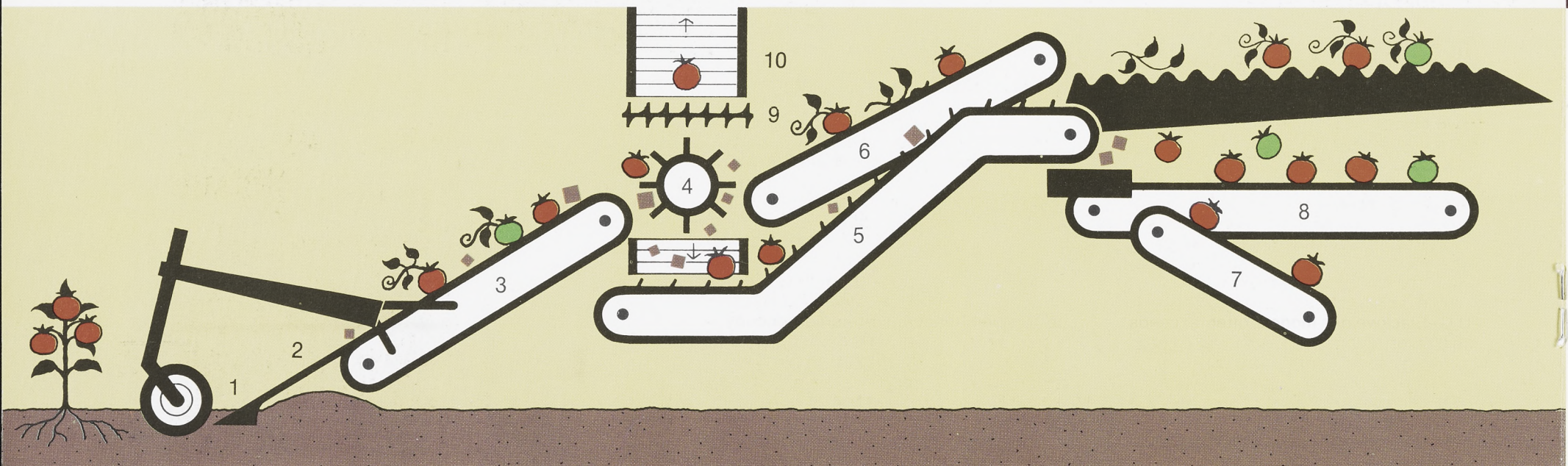
Gauge wheels, which ride in front of the header, are easily adjusted to meet field conditions. Once coordinated with the sickle-bar, maintaining the most efficient cutting depth requires minimum effort.



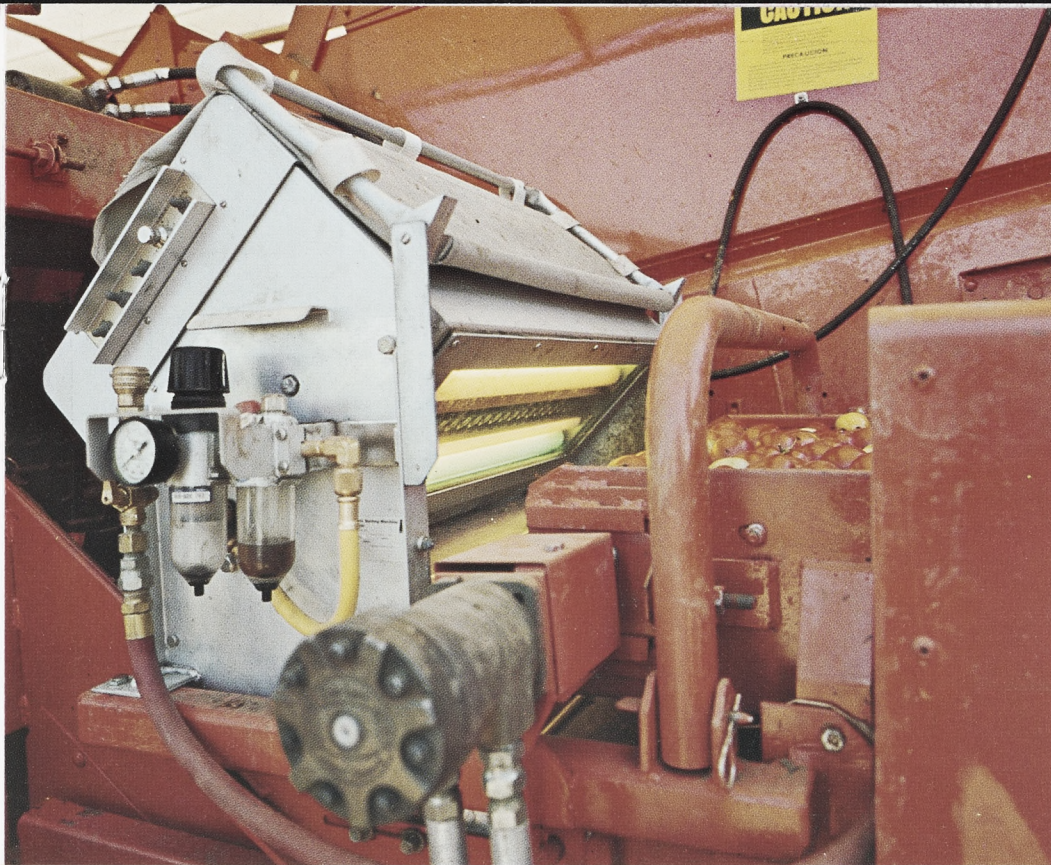
From the console, the operator can control most of the variables involved in a clean harvest—cutting depth, cutting speed, header speed, etc.

The ten major mechanical dirt-elimination areas on the U.C.-Blackwelder are shown here. They are:

1. Sickle for positive cut minimizes roots and dirt on harvester.
2. Adjustable ground-wave gap between sickle and pick-up header minimizes clods.
3. Pick-up header made of potato chain with 1" openings between links.
4. Adjustable spinner gap to clod system.
5. Potato-chain, clod/loose fruit conveyor system.
6. Upper header made of potato chain with 1" openings.
7. Electronic sorter elevator made of potato chain with  $\frac{7}{8}$ " openings.
8. Rod-type collecting conveyor with 1" openings.
9. Molded rubber transfer assembly.
10. Unloading elevator made of potato chain with  $\frac{7}{8}$ " openings. Up to 14 sorting stations are provided for manual dirt elimination on this electronically equipped harvester. These are used only when operating under extreme conditions, and are not shown on the diagram.







## Lightweight, high-capacity bulk-loading system accommodates greater yields

The two-stage, lightweight, structural aluminum discharge elevator has been designed for bulk truck or bin operations. The variable-speed chain elevator with high rubber flites can be coordinated with down-the-row speeds and/or high-volume fruit flow. The chain construction of this high-flite conveyor is just one more dirt-control measure designed into the machine to assure the delivery of clean fruit to the cannery.



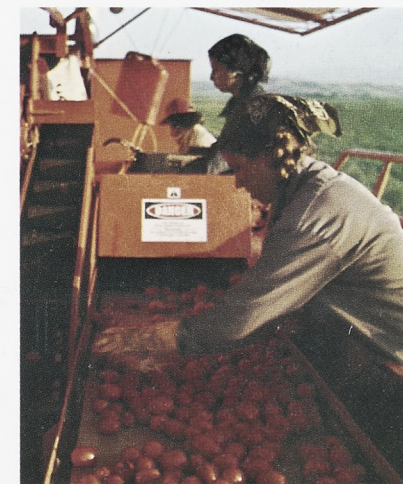
## Mass-flow electronic color sorting a proven high-volume producer

Two electronic color sorters capable of rejecting greens and clods are mounted on each U.C.-Blackwelder. These highly efficient ESM electronic color sorters are backed by several years of field-proven production records. They incorporate an exclusive "mass-flow" concept which is designed for efficient sorting of all tomato varieties at high down-the-row speeds. Annual volume of electronic-sorter-equipped U.C.-Blackwelder models often exceeds 10,000 tons. Tonnages as high as 16,000 per harvester have been recorded.

Twenty-two color sensors, each capable of making ten decisions per second, are coordinated with an equal number of pneumatic ejectors. Often, large imperfect tomatoes or clods simultaneously trip more

than one ejector to propel these larger units directly into the reject chute. Thus, the ESM system efficiently sorts fruit at extremely high rates of speed.

The U.C.-Blackwelder with electronic color sorting also has 14 manual sorting stations. These are seldom manned in areas where bed preparation and cultural practices have produced a prime crop. For late season harvesting and moldy conditions, up to seven manual sorters can occupy the following stations on each side of the machine: Clod belt—one; pre-electronic sort (usually for trash only)—two; after-sort (usually for over-ripe tomatoes)—three; cross-conveyor—one. Two entrances to sorting platforms are provided on each side of the machine.







## Three-speed hydrostatic drive for speeds to match crop conditions

Total hydrostatic drive gives the operator variable speed adjustments from 0 to 16.5 MPH in forward or reverse. With this flexibility it is possible to coordinate harvester speed precisely with crop conditions for optimum machine performance and for fast movement from one field to another.

## 100% hydraulics for greater dependability in around-the-clock operations

The U.C.-Blackwelder is the only tomato harvester with advanced closed-loop hydraulic circuitry. It is powered by two John Deere pumps—one is constant pressure, variable volume; the other is pressure-on-demand, variable volume. This over-sized system is exceptionally reliable, simple to trace and requires minimum maintenance.

The two integrated closed-loop circuits are both charged from a Sundstrand charge pump and use oil from a single common 26-gallon reservoir. Each circuit has its own heat exchanger and full-flow filtration.

Individual controls at the operator's fingertips permit sickle, header, sorting belts and elevator speeds to be adjusted to meet harvest conditions. Power steering hydraulics are isolated to assure full oil volume to pick-up header and delivery elevator while the machine is turning. Thus, the operator has maximum flexibility to balance all functions of the harvester to crop conditions.



## **Increased horsepower for reliable performance under full harvesting loads**

The U.C.-Blackwelder is powered by a direct-start, 360-cubic-inch, six-cylinder International Harvester turbocharged diesel engine. This power plant provides a 30% increase in horsepower over previous models. Engine speed is governed at a constant RPM for maximum efficiency.

## **Control center positioned for optimum efficiency**

The oversize operator platform is placed so the operator can observe field conditions, crop conditions, sorters (if needed), fruit flow, off-loading and the level of harvested fruit inside bulk trucks.

All knobs and levers on the simplified control panel are clearly marked with instantly recognizable international symbols. A knowledge of the English language is not required to operate the U.C.-Blackwelder tomato harvester.

## **Miscellaneous refinements**

A two-wire electrical harness with positive ground assures reliable illumination for nighttime harvesting.

75-amp brushless alternators are standard equipment.

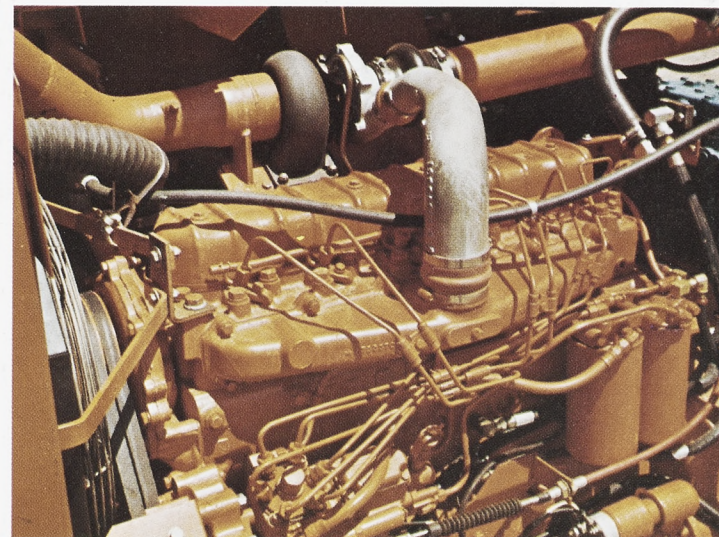
The neutral start switch is located on the speed-control lever to minimize service problems.

Triple-seal bearings are used wherever possible.

The mainframe construction is designed with strengths needed in high-yield, sustained-harvest operations.

Heavy-duty axles with planetary drives, front and rear, are standard equipment.

Fuel tanks are positioned for easy access for fuel-truck filling.



Turbo-charged diesel engine generates 120 H.P. at 2,400 RPM.







# U.C.-Blackwelder Model-134 Specifications

Design Speeds: Low 0-2.5 MPH forward & reverse  
(harvest speed)  
2nd 0-6.5 MPH forward & reverse  
(headland speed)  
3rd 0-16.5 MPH forward & reverse  
(road speed)

Weight: ..... 23,700 lbs.  
Length: ..... Field Ready ..... 29'-10"  
..... Shipping ..... 27'-10"  
Width: ..... Transport ..... 11'-11½"  
Width: ..... Less Delivery Elev. .... 14'-6"  
Height: ..... With Canopy Up ..... 11'-1"  
..... Transport ..... 9'-7"  
Tread: ..... Adjustable ..... 60" or 66"  
Wheel Base: ..... 102"

Turning Radius: ..... (curb to curb) 25'-11"  
Drive (propulsion): ..... 4-Wheel Hydrostatic  
Tires: ..... Road Grader 12-24 12 Ply  
Engine: ..... IHC UDT-414B Diesel 160 H.P.  
@ 2400 RPM

Fuel Capacity: ..... 60 Gallons  
Header Width: ..... 60 Inches  
Crew: ..... Up to 14 Sorters — 1 Operator  
(with Clod System)

Separation System: ..... Straw Walker  
Principle  
Delivery Elev: ..... Variable Speed Open Link  
Fold up for transport  
Width: ..... 27 inches



# BLACKWELDERS

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